

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

| | | |
|--|--|--|
| International application No. PCT/EP2004/051207 | International filing date (day/month/year) 23.06.2004 | Priority date (day/month/year) 24.06.2003 |
|--|--|--|

International Patent Classification (IPC) or both national classification and IPC
H01M4/86, H01M8/18, H01M8/04, C25B1/12

Applicant
MELOSI, Mario

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

| | | |
|--|--|---|
| Name and mailing address of the ISA:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized Officer Fitzpatrick, J Telephone No. +49 89 2399-8570 |  |
|--|--|---|

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 a sequence listing
 table(s) related to the sequence listing
 - b. format of material:
 in written format
 in computer readable form
 - c. time of filing/furnishing:
 contained in the international application as filed.
 filed together with the international application in computer readable form.
 furnished subsequently to this Authority for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2004/051207

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
industrial applicability; citations and explanations supporting such statement**

1. Statement

| | | | |
|-------------------------------|------|--------|------|
| Novelty (N) | Yes: | Claims | 1-13 |
| | No: | Claims | |
| Inventive step (IS) | Yes: | Claims | |
| | No: | Claims | 1-13 |
| Industrial applicability (IA) | Yes: | Claims | 1-13 |
| | No: | Claims | |

2. Citations and explanations

see separate sheet

Re Item V.

- D1: FR-A-1 452 701 (OFFICE NATIONAL INDUSTRIEL DE L'AZOTE) 15 April 1966 (1966-04-15)
- D2: KORDESCH ET AL: "Electrode Designs and Concepts for Bipolar Alkaline Fuel cells" INT.J. HYDROGEN ENERGY, vol. 10, no. 5, 1985, pages 317-324, XP002329059 GB
- D3: US-A-3 338 747 (PLUST HEINZ GUNTHER ET AL) 29 August 1967 (1967-08-29)
- D4: US-A-3 391 028 (VOSE RICHARD S) 2 July 1968 (1968-07-02)

Documents D3 and D4 both disclose application of pressure pulses via the gas supply circuit to the gas side of porous electrodes of fuel cells. This is very similar but perhaps cannot be expected to have exactly the same effect as pressure pulses applied directly to the electrolyte as in the current application. The latter approach in view of the incompressibility of liquids vs. gas, transmits the pulses instantaneously to the electrolyte within the pores of the porous electrodes with all ensuing positive effects thereof discussed on page 6, line 23 to page 7, line 1 and on page 10, lines 22 to 28. Document D1 however as well as disclosing the gas pressurising mode additionally discloses applying pressure pulses directly to the electrolyte of fuel cells containing porous electrodes (see Résumé, point 3°), such as those multi-layer structures suitable for alkaline fuel cells disclosed by Koredsch et al in document D2, whilst keeping the gas pressures constant. This anticipates the essential inventive contribution of the subject matters of at least current claims 1,2,6-10,12 and 13.